

Serial No.: 08/533,589 Filed September 25, 1995

CLAIMS

1. (previously presented) A blast resistant container comprising at least three bands of a material, a first inner band being nested within a second band which is nested within a third band, said bands being oriented relative to one another to substantially enclose a volume and to form a container wall having a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands, the outermost band being substantially seamless and blast resistant, wherein each edge of the container is covered by at least one of said bands.

2. (Original) The container of claim 1 wherein each of said first, second, and third bands is a tube having a longitudinal axis, and wherein the longitudinal axes of said first, second, and third bands are substantially perpendicular to one another.

3. (Original) The container of claim 2 wherein each of the bands is substantially polygonal in cross-section.

4. (Original) The container of claim 3 wherein at least one of said bands comprises a plurality of substantially rectangular surfaces in series, said surfaces numbering at least one more than the number of sides of the polygon of the cross-section of the band, and wherein said band comprising said surfaces is nested within another said band.

5. (Original) The container of claim 3 wherein each of the bands is substantially rectangular in cross-section to thereby substantially form a rectangular prism.

6. (Original) The container of claim 5 wherein each of the bands is substantially square in cross-section to thereby substantially form a cube.

7. (Cancelled)

8. (Original) The container of claim 1 wherein a rigid support structure is nested within said first inner band.

9. (Original) The container of claim 8 wherein said rigid support structure comprises a low density, lightweight polymeric or metallic band.

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10. (previously presented) A blast resistant container comprising a rigid support structure and at least three bands of a material, a first inner band being nested within a second band which is nested within a third band, said bands being oriented relative to one another to substantially enclose a volume and to form a container wall having a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands, the outermost band being substantially seamless and blast resistant, said rigid support structure comprising a low density, lightweight polymeric or metallic band nested within said first inner band and wrapped with glass or carbon fibers.

11. (Original) The container of claim 8 wherein said first inner band is affixed to said rigid support structure.

12. (Original) The container of claim 1 wherein the band material comprises at least one fibrous layer, said fibrous layer comprising at least one network of fibers, at least about 10 weight percent of said fibers being substantially continuous lengths of fiber that encircle the enclosed volume.

13. (Original) The container of claim 12 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

14. (Original) The container of claim 12 wherein at least about 50 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume, and wherein said bands are substantially seamless.

15. (Original) The container of claim 14 wherein at least about 75 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume.

16. (Original) The container of claim 15 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

17. (Original) The container of claim 16 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers,

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aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

18. (Original) The container of claim 16 wherein said fibers are polyolefin fibers.

19. (Original) The container of claim 16 wherein said fibers are aramid fibers.

20. (Original) The container of claim 16 wherein said fibers are a mixture of at least two of polyethylene fibers, aramid fibers, polyamide fibers, carbon fibers and glass fibers.

21. (Original) The container of claim 13 wherein said high strength fibers are selected from the group consisting of extended chain polyolefin fibers, aramid fibers, polyvinyl alcohol fibers, polyacrylonitrile fibers, liquid copolyester fibers, polyamide fibers, glass fibers, carbon fibers, and mixtures thereof.

22. (Original) The container of claim 13 wherein said fibers are polyolefin fibers.

23. (Original) The container of claim 13 wherein said fibers are aramid fibers.

24. (Original) The container of claim 13 wherein said fibers are a mixture of at least two of polyethylene fibers, aramid fibers, polyamide fibers, carbon fibers and glass fibers.

25. (Original) The container of claim 13 wherein the network of fibers is in a resin matrix.

26. (Original) The container of claim 25 wherein the matrix comprises a low modulus polymeric matrix selected from the group consisting of a low density polyethylene; a polyurethane; a flexible epoxy; a filled elastomer vulcanizate; a thermoplastic elastomer; and a modified nylon 6.

27. (Original) The container of claim 25 wherein said fiber comprises a high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

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28. (Original) The container of claim 27 wherein each of the bands is substantially polygonal in cross-section and deforms to increase the enclosed volume during an explosion.

29. (Original) The container of claim 25 wherein at least about 50 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume, and wherein said bands are substantially seamless.

30. (Original) The container of claim 29 wherein at least about 75 weight percent of said fibers are substantially continuous lengths of fiber that encircle the enclosed volume.

31. (Original) The container of claim 1 wherein said band material comprises an oriented film selected from the group consisting of homopolymers and copolymers of thermoplastic polyolefins, thermoplastic elastomers, crosslinked thermoplastics, crosslinked elastomers, polyesters, polyamides, fluorocarbons, urethanes, epoxies, polyvinylidene chloride, polyvinyl chloride, and blends thereof.

32. (Original) The container of claim 31 wherein said band material further comprises a network of fibers, at least about 10 weight percent of said fibers being substantially continuous lengths of high strength fiber that encircle the enclosed volume, said high strength fiber having a tenacity of at least about 10 g/d and a tensile modulus of at least about 200 g/d.

33. (Previously presented) A blast resistant container comprising three tubular bands of a composite material, each of said bands being substantially rectangular in cross-section, a first rigid inner band being nested in a second band which is nested in a substantially seamless blast resistant third band so as to form a rectangular prism having six faces each of which has a thickness substantially equivalent to the sum of the thicknesses of at least two of the bands, each edge of the container being covered by at least one of said bands.

34. (Original) The blast resistant container of claim 33 wherein said composite material comprises at least one fibrous layer, said fibrous layer comprising at least one network of high strength fibers dispersed in a resin

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matrix, at least about 10 weight percent of said fibers being substantially continuous lengths of fiber that encircle the prism.

35. (Original) The blast resistant container of claim 34 wherein the third band is substantially seamless and comprises four rectangular surfaces in series which encircle the prism.

36. (Original) The blast resistant container of claim 35 wherein the bands deform during an explosion to increase the volume enclosed thereby.

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